

INSPECTION TECHNICAL PROCEDURE

I-133

QUALITY CONTROL PROGRAM INSPECTION

August 15, 2003
Revision 3

Reviewed by: Patrick C. Carier
Verification and Confirmation Official

Date: 8/27/03

Concur: Robert C. Barr

Date: 12/11/03

Table of Contents

1.0	PURPOSE	1
2.0	OBJECTIVES	1
3.0	INSPECTION REQUIREMENTS	1
3.1	Qualifications, Certifications and Training for Inspection Personnel	1
3.2	Functional Qualification Levels of Inspection and Test Personnel	3
3.3	Education and Experience Qualification Requirements	4
3.4	Maintaining Qualification Documentation for Inspection and Test Personnel	5
3.5	Inspection Requirements	7
3.6	Inspection Planning	8
3.7	In-Process Inspection and Monitoring	8
3.8	Final Inspections	9
3.9	Control of Nonconforming Items, Materials, and Services	10
3.10	Documentation and Evaluation of Nonconformances	10
3.11	Identification of Nonconformances	11
3.12	Segregation	12
3.13	Disposition	12
3.14	Re-examination and Quality Trending	13
3.15	Surveillances	13
4.0	INSPECTION GUIDANCE	14
4.1	Qualifications and Certifications for QC Personnel	14
4.2	Functional Qualification Levels of Inspection and Test Personnel	15
4.3	Education and Experience Qualification Requirements	16
4.4	Maintaining Qualification Documentation for Inspection and Test Personnel	16
4.5	Inspection Requirements	17
4.6	Inspection Planning	18
4.7	In-Process Inspection and Monitoring	18
4.8	Final Inspections	19
4.9	Control of Nonconforming Items, Materials, and Services	20
4.10	Documentation and Evaluation of Nonconformances	20
4.11	Identification of Nonconformances	21
4.12	Segregation	21
4.13	Disposition	21
4.14	Re-examination and Quality Trending	22
4.15	Surveillances	22
5.0	REFERENCES	23
6.0	LIST OF TERMS	23

INSPECTION TECHNICAL PROCEDURE

QUALITY CONTROL PROGRAM INSPECTION, I-133, REV. 3

1.0 PURPOSE

The purpose of this inspection procedure is to provide the WTP Safety Regulation Division (OSR) guidance to assess the Contractor's procedures and processes controlling the quality control (QC) program. This guidance is based on the requirements set forth in 10 CFR 830, Subpart A, "Quality Assurance Requirements," and in the Contractor's Quality Assurance Manual (QAM). Specifically, this procedure addresses assessment of the adequacy and effectiveness of the following:

- Qualification and certification for QC personnel
- Criteria for QC verification activities
- Performance of QC verification activities
- Identification and documentation of deficiencies
- Verification of completion of corrective action.

2.0 OBJECTIVES

This inspection procedure is to assist the OSR in its efforts to verify the Contractor's processes for the QC program are according to the QAM policies, and applicable implementing procedures. The inspection should verify the Contractor's QC program establishes requirements for qualifications and certifications for QC personnel, specific criteria for surveillance activities, identification and documentation of deficiencies, and verification of completion of corrective action.

This inspection procedure was designed as a component of a complete construction inspection program. This inspection procedure and others will be used, as needed, to ensure construction activities are being conducted as required by authorization basis commitments and Contractor procedures. During the construction phase, a significant portion of this inspection procedure is expected to be accomplished at least once for each major Contractor/subcontractor involved with the activities covered by this procedure. The entire procedure is not expected to be completed during any one inspection and/or every time the inspection procedure is used.

3.0 INSPECTION REQUIREMENTS

3.1 Qualifications, Certifications and Training for Inspection Personnel

The inspector should perform the following activities:

- 3.1.1 Verify procedures implementing the personnel training and qualification requirements provide for developing worker competence commensurate with the scope, complexity, and nature of the activities their jobs require. (QAM Policy Q-02.2, Section 2.7)
- 3.1.2 Verify personnel training and qualification is conducted utilizing approved procedures that implement the requirements of QAM Policy Q-02.2. (QAM Policy Q-02.2, Section 2.7)
- 3.1.3 Verify personnel performing nondestructive examination (NDE), inspection, and tests to verify quality comply with the following qualification requirements:
- Personnel who perform NDE (including radiographic testing, magnetic particle testing, ultrasonic testing, liquid penetrant testing, electromagnetic testing, neutron radiography, leak testing, and acoustic emission), to verify conformance to specified requirements must be qualified to procedures that meet the requirements of the *American Society of Nondestructive Testing Recommended Practice* No. SNT-TC-1A, June 1980 Edition, and its applicable supplements. In lieu of the three-year certification interval specified in SNT-TC-1A, June 1980 Edition, Level III Nondestructive Examination personnel may be re-certified on a five-year interval. When required by the implementing code, visual testing will be subject to these same requirements.
 - Inspection and test personnel qualification requirements will be included in specific procedures.
 - Inspection and test personnel must be qualified as required by specific procedures.
 - The initial capabilities of an inspection and test candidate must be determined by an evaluation of the candidate's education, experience, training, and either test results or capability demonstration.
 - Re-evaluation of independent inspection and test personnel job performance must be by evidence of continued satisfactory performance or re-determination of capability in accordance with the requirements of this policy. If, during this evaluation, or at any other time, it is determined by the responsible organization that the capabilities of an individual are not in accordance with the qualification requirements specified for the job, that person must be removed from that activity until such time as the required capability has been demonstrated. Work performed by the individual during the time they were not qualified, must be evaluated by a qualified individual for acceptance. The evaluation must be documented.
 - Any person who has not performed independent inspection or testing activities in the qualified area for a period of one year must be re-evaluated. (QAM Policy Q-02.2, Subsection 3.3.3)

- 3.1.4 Verify personnel performing quality control independent inspections to verify conformance of an item to specified acceptance criteria are qualified and certified according to the indoctrination, training, education, experience, and physical requirements. (QAM Policy Q-10.1, Subsection 3.7.1)
- 3.1.5 Verify the initial capabilities of a candidate are determined by an evaluation of the candidate's education, experience, training, and either test results or capability demonstration. The evaluation must be performed to the requirements of the applicable functional level, and education and experience requirements of the Contractor's QA Manual. (QAM Policy Q-10.1, Subsection 3.7.2)
- 3.1.6 Verify inspection and test personnel are indoctrinated to the technical objective and requirements of the applicable codes and standards, and the QA program requirements that are to be employed in executing their responsibilities. (QAM Policy Q-10.1, Subsection 3.8.1)
- 3.1.7 Verify indoctrination and training is commensurate with scope; complexity; importance of the activities; special nature of the inspections or tests; and the education, experience, and proficiency of the person. (QAM Policy Q-10.1, Subsection 3.8.2)
- 3.1.8 Verify the need for a formal training program is determined, and training is provided as required to qualify personnel for performing inspections and tests. (QAM Policy Q-10.1, Subsection 3.8.3)
- 3.1.9 Verify on-the-job training, with emphasis on hands-on experience gained through actual performance of inspections and test, is included in the training program. (QAM Policy Q-10.1, Subsection 3.8.4)
- 3.1.10 Verify on-the-job training for personnel qualification is performed under the direct observation and supervision of a qualified person. (QAM Policy Q-10.1, Subsection 3.8.5)
- 3.1.11 Verify documented verifications of personnel qualification are performed by qualified individuals, and not by the person being administered on-the-job training. (QAM Policy Q-10.1, Subsection 3.8.6)

3.2 Functional Qualification Levels of Inspection and Test Personnel

The inspector should perform the following activities:

- 3.2.1 Verify the Contractor uses three levels of functional qualification (Levels I, II, and III) depending on the complexity of the functions involved, and that the criteria for each level are not limiting with regard to organizational position or professional status, but are limiting with regard to functional work. (QAM Policy Q-10.1, Subsection 3.9)

- 3.2.2 Verify Level I personnel are capable of performing and documenting the results of designated inspections or tests. (QAM Policy Q-10.1, Subsection 3.9.1)
- 3.2.3 Verify Level II personnel have Level I capabilities for the corresponding category or class, and have demonstrated capabilities in:
- Inspection or test planning
 - Advanced preparation, including the preparation and setup of related equipment, as appropriate
 - Supervising or monitoring the inspections or tests
 - Supervising and certifying lower-level personnel
 - Evaluating the validity and acceptability of results. (QAM Policy Q-10.1, Subsection 3.9.2)
- 3.2.4 Verify Level III personnel have Level II capabilities for the corresponding category or class, and are capable of evaluating the adequacy of specific programs used to train, qualify, and certify the personnel. (QAM Policy Q-10.1, Subsection 3.9.3)

3.3 Education and Experience Qualification Requirements

The inspector should perform the following activities:

- 3.3.1 Verify the Contractor's requirements for education and experience are considered with recognition that other factors commensurate with the scope, complexity, or special nature of inspections or tests affect the assurance that a person can competently perform a particular task, and documents other factors that demonstrate capability in a given job and the basis for their equivalency. (QAM Policy Q-10.1, Subsection 3.10)
- 3.3.2 Verify Level I inspection personnel meet the following education and experience requirements:
- Two years of related experience in equivalent inspections or tests; or
 - High school graduation or general equivalency diploma (GED) and six months of related experience in equivalent inspections or tests; or
 - Completion of college level work leading to an associate degree in a related discipline plus three months of related experience in equivalent inspections or tests. (QAM Policy Q-10.1, Subsection 3.10.1)

3.3.3 Verify Level II inspection personnel meet the following education and experience requirements:

- One year of satisfactory performance as a Level I in the corresponding category or class; or
- High school graduation or GED plus three years of related experience in equivalent inspections or tests; or
- Completion of college-level work leading to an associate degree in a related discipline plus one year of related experience in equivalent inspections or tests; or
- Graduation from a four-year college plus six months of related experience in equivalent inspections or tests. (QAM Policy Q-10.1, Subsection 3.10.2)

3.3.4 Verify Level III inspection personnel meet the following education and experience requirements:

- Six years of satisfactory performance as a Level II in the corresponding category or class; or
- High school graduation plus ten years of related experience in equivalent inspections or tests; or high school graduation plus eight years of experience in equivalent inspections or tests with at least two years as a Level II and with at least two years associated with nuclear facilities; or, if not, at least sufficient training to be acquainted with the relevant quality assurance program aspects of a nuclear-related facility; or
- Completion of college-level work leading to an associate degree and seven years of related experience in equivalent inspections or tests with at least two years of this experience associated with nuclear facilities; or, if not, at least sufficient training to be acquainted with the relevant quality assurance program aspects of a nuclear-related facility; or
- Graduation from a four-year college plus five years of related experience in equivalent inspections or tests with at least two years of this experience associated with nuclear facilities; or, if not, at least sufficient training to be acquainted with the relevant quality assurance program aspects of a nuclear-related facility. (QAM Policy Q-10.1, Subsection 3.10.3)

3.4 Maintaining Qualification Documentation for Inspection and Test Personnel

The inspector should perform the following activities:

- 3.4.1 Verify the Contractor establishes and maintains records of qualification (e.g., attendance sheets, training logs, or personnel training records), including re-qualification for inspection and test personnel. (QAM Policy Q-10.1, Subsection 3.11.1)
- 3.4.2 Verify the Contractor's inspection and test personnel qualification documentation contains the information required for the initial qualification and the maintenance of qualification. (QAM Policy Q-10.1, Subsection 3.11.2)
- 3.4.3 Verify documentation for each person is maintained and updated according to the following requirements:
- Removal of a person from performing in an area of certification when the responsible organization determines that the capabilities of the individual are not in accordance with the qualification requirements specified for the job as described in this section, and this is documented at the time of removal.
 - Reinstatement of certification for the qualified area when the required capability has been demonstrated as described in this section, and this is documented at the time of reinstatement.
 - Continued performance in each certified area or re-determination of required capability as described in this section for each certified area is updated annually.
 - Re-evaluation of job performance by evidence of continued satisfactory performance or re-determination of capability as described in this section, and this is updated every three years. (QAM Policy Q-10.1, Subsection 3.11.3)
- 3.4.4 Verify the integrity of examinations is maintained by the employer or certifying agency through appropriate confidentiality of files and, where applicable, proctoring of examination. (QAM Policy Q-10.1, Subsection 3.11.4)
- 3.4.5 Verify the Contractor maintains copies of objective evidence regarding the type(s) and content of the examination(s) in accordance with the requirements of QAM Policy Q-02.2, *Personnel Training and Qualification*. (QAM Policy Q-10.1, Subsection 3.11.4)
- 3.4.6 Verify the Contractor identifies special physical characteristics needed in the performance of each activity, including the need for initial and subsequent visual acuity and other physical examination. (QAM Policy Q-10.1, Subsection 3.12)
- 3.4.7 Verify the qualification of inspection and test personnel is certified in writing by the responsible organization, and documents the following information:
- Employer's name
 - Identification of the person being certified

- Activities, qualified inspection and test categories or class the individual is certified to perform
- Basis of qualification (i.e., education, experience, indoctrination, and training; test results, where applicable; capability demonstration results; results of periodic evaluations)
- Results of visual acuity and other physical examinations, when required
- Signature of the employer's designated representative who is responsible for such certification
- Date of certification or recertification and certification expiration. (QAM Policy Q-10.1, Subsection 3.13)

3.5 Inspection Requirements

The inspector should perform the following activities:

- 3.5.1 Verify inspections required to verify conformance of an item or activity to specified requirements or the continued acceptability of items in service are planned and executed. (QAM Policy Q-10.1, Subsection 3.1.1)
- 3.5.2 Verify characteristics subject to inspection and inspection methods are specified, and inspection results were documented. (QAM Policy Q-10.1, Subsection 3.1.2)
- 3.5.3 Verify inspection for acceptance is performed by qualified persons other than those who perform or directly supervise the work being inspected, and that these personnel do not report directly to the immediate supervisor responsible for the item being examined. (QAM Policy Q-10.1, Subsection 3.1.3)
- 3.5.4 Verify when sampling procedures are used they were based on valid statistical methods. (QAM Policy Q-10.1, Subsection 3.1.4)
- 3.5.5 Verify inspection requirements and acceptance criteria include specified requirements contained in the applicable design documents or other pertinent technical documents approved by the responsible design organization. (QAM Policy Q-10.1, Subsection 3.2)
- 3.5.6 Verify if mandatory Quality Control independent inspection hold points are required beyond which work must not proceed without specific consent of the designated representative, the specific hold points are indicated in appropriate documents. (QAM Policy Q-10.1, Subsection 3.3)
- 3.5.7 Verify consent to waive specified hold points is recorded prior to continuation of work beyond the designated hold point. (QAM Policy Q-10.1, Subsection 3.3)

3.6 Inspection Planning

The inspector should perform the following activities:

- 3.6.1 Verify required in-service inspection or surveillance of structures, systems, or components (SSCs) are planned and executed by, or for, the organization responsible for operation. (QAM Policy Q-10.1, Subsection 3.4.1)
- 3.6.2 Verify inspection planning is performed, documented, and includes the following:
- Identification of each work operation where inspection is necessary to ensure quality and implementing documents that will be used to perform the inspections
 - Identification of characteristics to be inspected; methods of inspection; acceptance criteria; process monitoring methods to be employed; and when during the work process the inspections are to be made
 - Identification of the functional qualification level (i.e., Level I, II, or III Qualification Level) of personnel performing inspections
 - Identification of acceptance criteria
 - Identification of sampling requirements
 - Methods to record inspection results
 - Selection and identification of the measuring and test equipment to be used to perform the inspection to ensure that the equipment is calibrated and is of the proper type, range accuracy, and tolerance to accomplish the intended function
 - The final inspection shall be planned to arrive at a conclusion regarding conformance of the item or specified requirements.
 - Hold and witness points, as appropriate. (QAM Policy Q-10.1, Subsection 3.4.2)

3.7 In-Process Inspection and Monitoring

The inspector should perform the following activities:

- 3.7.1 Verify inspection and monitoring of items under construction or otherwise in process is performed as necessary to verify quality. (QAM Policy Q-10.1, Subsection 3.5.1)
- 3.7.2 Verify if inspection of processed items is impossible or disadvantageous, indirect control by monitoring of processing methods, equipment, and personnel is provided. (QAM Policy Q-10.1, Subsection 3.5.2)

- 3.7.3 Verify both inspection and process monitoring are provided when control is inadequate without both. (QAM Policy Q-10.1, Subsection 3.5.3)
- 3.7.4 Verify both combination of inspection and process monitoring methods are performed in a systematic manner to ensure that the specified requirements for control of the process, and the quality of the item are met throughout the duration of the process. (QAM Policy Q-10.1, Subsection 3.5.4)
- 3.7.5 Verify controls are established and documented for the coordination and sequencing of these activities at established inspection points during successive stages of the process or construction. (QAM Policy Q-10.1, Subsection 3.5.5)

3.8 Final Inspections

The inspector should perform the following activities:

- 3.8.1 Verify completed items are inspected for completeness, markings, calibration, adjustments, protection from damage, or other characteristics as required to verify the quality and conformance to the specific requirements. (QAM Policy Q-10.1, Subsection 3.6.1)
- 3.8.2 Verify the acceptance of an item is documented and approved by qualified and authorized personnel. (QAM Policy Q-10.1, Subsection 3.6.2)
- 3.8.3 Verify the inspection status of an item is identified. (QAM Policy Q-10.1, Subsection 3.6.3)
- 3.8.4 Verify final inspections include a record review of the results and resolution of nonconformances identified by prior inspections. (QAM Policy Q-10.1, Subsection 3.6.4)
- 3.8.5 Verify any modifications, repairs, or replacements of items performed subsequent to final inspection are re-inspected or re-tested, as appropriate, to verify acceptability. (QAM Policy Q-10.1, Subsection 3.6.5)
- 3.8.6 Verify inspection documentation includes the following:
 - The item inspected.
 - The date of inspection.
 - The name of the inspector, or the inspector's unique identifier, who documented, evaluated; and determined acceptability.
 - The name of the data recorder, as applicable.

- The type of observation or method of inspection.
- The inspection criteria, sampling plan, or reference documents (including revision levels) used to determine acceptance.
- Results indicating acceptability of characteristics inspected.
- Reference to information on actions taken in connection with nonconformances.
- Measuring and test equipment used during the inspection, including the identification number and the most current calibration date and/or the calibration due date. (QAM Policy Q-10.1, Subsection 3.6.6)

3.8.7 Verify documentation not previously examined prior to final inspection is examined for adequacy and completeness. (QAM Policy Q-10.1, Subsection 3.6.7)

3.9 Control of Nonconforming Items, Materials, and Services

The inspector should perform the following activities:

- 3.9.1 Verify items that do not conform to specified requirements are controlled to prevent inadvertent installation or use of the item, and that the controls include the following: identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and notification to relevant organizations. (QAM Policy Q-15.1, Subsection 3.1.1)
- 3.9.2 Verify the Contractor's QA/QC activities associated with nonconforming items include validation of the nonconformance, review of dispositions, verification of completion of disposition actions, and closure of the reporting document. (QAM Policy Q-15.1, Subsection 3.1.2)

3.10 Documentation and Evaluation of Nonconformances

The inspector should perform the following activities:

- 3.10.1 Verify nonconformance documentation is clearly identified and describe the characteristics that do not conform to specified criteria. (QAM Policy Q-15.1, Subsection 3.2.1)
- 3.10.2 Verify nonconforming items are evaluated; and recommended dispositions are proposed, evaluated, and approved. (QAM Policy Q-15.1, Subsection 3.2.2)
- 3.10.3 Verify the review includes determining the need for corrective action. (QAM Policy Q-15.1, Subsection 3.2.3)

3.10.4 Verify the documentation of a nonconformance is required when a Quality Level (QL) item:

- Fails to meet required technical or quality requirements.
- Is of indeterminate quality.
- Is a suspect/counterfeit item.
- Has documentation of deficiencies (i.e., missing, incomplete, illegible, or damaged documents; improper revisions; or documents having unauthorized changes) which render the quality of the item indeterminate and which cannot be corrected before further processing, delivery, installation, or use. (QAM Policy Q-15.1, Subsection 3.2.4)

3.10.5 Verify organizations affected by the nonconformances are notified. (QAM Policy Q-15.1, Subsection 3.3.1)

3.10.6 Verify personnel performing evaluations to determine a disposition has demonstrated competence in the specific area they are evaluating, has adequate understanding of the requirements, and has access to pertinent background information. (QAM Policy Q-15.1, Subsection 3.4.1)

3.10.7 Verify the responsibility and authority for reviewing, evaluating, approving, the disposition, and closing nonconformances are defined. (QAM Policy Q-15.1, Subsection 3.5.1)

3.10.8 Verify the responsibility for the control of further processing, delivery, installation, or use of nonconforming items are designated in writing. (QAM Policy Q-15.1, Subsection 3.5.2)

3.10.9 Verify further processing, delivery, installation, or use of a nonconforming item is controlled pending the evaluation and an approved disposition by authorized personnel. (QAM Policy Q-15.1, Subsection 3.5.3)

3.11 Identification of Nonconformances

The inspector should perform the following activities:

3.11.1 Verify nonconforming items are identified by marking, tagging, segregation, or other methods not detrimental to the item, the container, or the package containing the item, and that the identification is legible and easily recognizable. (QAM Policy Q-15.1, Subsection 3.6.1)

- 3.11.2 Verify if the identification of a nonconforming item is not practical, then the container, package, or segregated storage area, as appropriate, is identified. (QAM Policy Q-15.1, Subsection 3.6.2)

3.12 Segregation

The inspector should perform the following activities:

- 3.12.1 Verify nonconforming items are segregated, when practical, by placing them in a clearly identified and designated hold area until properly dispositioned. (QAM Policy Q-15.1, Subsection 3.7.1)
- 3.12.2 Verify when segregation is impractical or impossible due to physical conditions such as size, weight, or access limitations, other precautions are employed to preclude inadvertent use of the nonconforming item. (QAM Policy Q-15.1, Subsection 3.7.2)

3.13 Disposition

The inspector should perform the following activities:

- 3.13.1 Verify the disposition of use-as-is, reject, repair, or rework for nonconforming items is identified and documented. (QAM Policy Q-15.1, Subsection 3.8.1)
- 3.13.2 Verify the technical justification for the acceptability of a nonconforming item that has been dispositioned repair or use-as-is is documented. (QAM Policy Q-15.1, Subsection 3.8.2)
- 3.13.3 Verify items that do not meet original design requirements that are dispositioned use-as-is or repair are subject to design control measures commensurate with those applied to the original design. (QAM Policy Q-15.1, Subsection 3.8.3)
- 3.13.4 Verify required as-built records reflect the use-as-is or repair condition. (QAM Policy Q-15.1, Subsection 3.8.4)
- 3.13.5 Verify if changes to the specifying document are required to reflect the as-built condition, the disposition required action included changing the specifying document to reflect the accepted nonconformance. (QAM Policy Q-15.1, Subsection 3.8.5)
- 3.13.6 Verify any document or quality assurance record change required by the disposition of the nonconformance is identified in the nonconformance documentation; and when each document or record is changed, the justification for the change identified the nonconformance documentation. (QAM Policy Q-15.1, Subsection 3.8.6)

- 3.13.7 Verify the disposition of an item to be re-worked or repaired contained a requirement to re-examine (inspect, test, or nondestructively examine) the item to verify acceptability. (QAM Policy Q-15.1, Subsection 3.8.7)
- 3.13.8 Verify the recommended disposition is evaluated and approved. (QAM Policy Q-15.1, Subsection 3.8.8)

3.14 Re-examination and Quality Trending

The inspector should perform the following activities:

- 3.14.1 Verify repaired or reworked items are re-examined using the original process and acceptance criteria unless the nonconforming item disposition had established alternate acceptance criteria. (QAM Policy Q-15.1, Subsection 3.9)
- 3.14.2 Verify nonconformance documentation is periodically analyzed by the QA organization to identify quality trends. (QAM Policy Q-15.1, Subsection 3.10)

3.15 Surveillances

The inspector should perform the following activities:

- 3.15.1 Verify surveillances are conducted to:
- Verify the quality of work in progress and compliance with applicable governing documents.
 - Identify conditions adverse to quality.
 - Ensure that prompt corrective action is taken by management responsible for performing the work.
 - Verify the timely implementation, adequacy, and effectiveness of corrective action. (QAM Policy Q-18.2, Subsection 3.1.1)
- 3.15.2 Verify surveillances are performed by personnel who are technically knowledgeable about, and not directly responsible for, the work under surveillance. (QAM Policy Q-18.2, Subsection 3.1.2)
- 3.15.3 Verify personnel performing surveillances have sufficient authority and freedom from the line to carry out their responsibilities. (QAM Policy Q-18.2, Subsection 3.1.2)
- 3.15.4 Verify surveillances are documented in a report to appropriate management. (QAM Policy Q-18.2, Subsection 3.1.3)

- 3.15.5 Verify surveillances are conducted to evaluate the quality of selected work subject to this policy. (QAM Policy Q-18.2, Subsection 3.1.4)

4.0 INSPECTION GUIDANCE

For each area listed below, the inspector should review the Contractor's QAM, policies, and procedures for various quality control activities, review objective evidence that the QAM, policies, and procedures have been implemented, and interview personnel responsible for various quality control activities. In addition to reviewing 10 CFR 830, Subpart A, and applicable parts of the QAM, the inspector also should review G-830.120.

Suggested sample sizes are included in some of the inspection elements below. However, the inspector should use judgment in selecting a different sample size based on the status of the construction activities or on the initial observations in any area. The samples should be large enough to provide confidence: (1) the Contractor has approved procedures, (2) the procedures are being implemented, and (3) the personnel are properly qualified for the work they are performing. The intent is to establish a high level of assurance that the end product meets requirements.

4.1 Qualifications and Certifications for QC Personnel

The inspector should perform the following activities:

- 4.1.1 Review the Contractor's procedures for training and qualification of inspection and test personnel to confirm they provide for developing worker competence commensurate with the scope, complexity, and nature of the activities their jobs require.
- 4.1.2 Review records of the Contractor's training and qualification of inspection and test personnel to determine it is conducted utilizing the approved procedures.
- 4.1.3 Select and review qualification records for a minimum of three individuals who perform NDE inspection and tests to confirm the records are in compliance with the requirements specified in Section 3.1.3 of this procedure.
- 4.1.4 Review the qualification records of the three NDE inspectors selected in Section 4.1.3 above to ensure they are qualified in the appropriate discipline (e.g., civil, mechanical, electrical, or environmental).
- 4.1.5 Interview personnel and review procedures to determine whether codes and standards required certified inspection personnel be used for any QC verification activities. Review a minimum of three certifications for QC personnel to determine that the certification is current.

- 4.1.6 Select and review a minimum of three selected subcontractors who perform QC inspection verification and nondestructive examination to ensure that the subcontractor's personnel have the required certifications and qualifications.
- 4.1.7 Obtain and review a minimum of three obtained certifications of QC personnel who perform the following verification activities:
 - NDE certifications to ASNT Standard SNT-TC-1A
 - Level I, II, or III construction inspector certified based on background – civil, electrical, mechanical, instrumentation
 - Specific site activities (e.g., equipment operation, fire protection, and training for hazardous waste workers on specific code, standard, and site requirements).
- 4.1.8 Review the training records for the Contractor's inspection and test personnel to confirm whether or not the need for a formal training program is determined.
- 4.1.9 Review the Contractor's formal training program for inspection and test personnel to confirm on-the-job training, with emphasis on hands-on experience gained from actual performance of the inspection and test, is included.
- 4.1.10 Select and review the records of on-the-job training for a minimum of three inspection and test personnel to confirm the on-the-job training is performed under the direct observation and supervision of a qualified person.
- 4.1.11 Review the records of on-the-job training of inspection and test personnel selected above to confirm qualified personnel perform the verification of the personnel qualifications, and not the person being administered the on-the-job training.

4.2 Functional Qualification Levels of Inspection and Test Personnel

The inspector should perform the following activities:

- 4.2.1 Review the Contractor's procedures for qualification of inspection and test personnel to confirm they use three levels of functional qualification (Levels I, II, and III) depending on the complexity of the functions involved. The inspectors should review the criteria for each level to confirm they are limiting only with regard to functional work and not regarding organizational position or professional status.
- 4.2.2 Obtain and review the results of inspections or tests performed by a minimum of three Level I personnel to determine the results are documented in accordance with applicable governing documents.

- 4.2.3 Obtain and review the results of inspections or tests performed by a minimum of three Level II personnel to determine the individual's capabilities include those of a Level I, and include the items listed in Section 3.2.3 of this procedure.
- 4.2.4 Review the results of inspections or tests performed by a minimum of three Level III personnel to determine the individuals capabilities include those of a Level II, and are capable of evaluating the adequacy of specific programs used to train, qualify, and certify the personnel.

4.3 Education and Experience Qualification Requirements

The inspector should perform the following activities:

- 4.3.1 Review the Contractor's qualification requirements for inspection and test personnel to confirm they include consideration of education and experience. The inspectors should select and review the records of a minimum of three qualification requirements for inspection and test personnel to confirm they include documentation of the factors that demonstrate capability within a given job and the basis for equivalency of these factors to the education and experience qualifications.
- 4.3.2 Select and review qualification records for a minimum of three Level I inspection and test personnel to confirm the individuals meet the education and experience requirements specified in Section 3.3.2 of this procedure.
- 4.3.3 Select and review the qualification records for a minimum of three Level II inspection and test personnel to confirm the individuals meet the education and experience requirements specified in Section 3.3.3.
- 4.3.4 Select and review the qualification records for a minimum of three Level III inspection and test personnel to confirm the individuals meet the education and experience requirements specified in Section 3.3.4.

4.4 Maintaining Qualification Documentation for Inspection and Test Personnel

The inspector should perform the following activities:

- 4.4.1 Obtain a listing of the Contractor's inspection and test personnel and confirm through review of records qualification records are available for each of the individuals included on the list. The inspectors should obtain and review the records of qualifications for a minimum of three inspection and test personnel to determine records (e.g., attendance sheets, training logs, or personnel training records) are established and maintained.

- 4.4.2 Review the qualification records for each of the inspection and test personnel selected above to confirm the records contain both initial qualification and re-qualification information.
- 4.4.3 Interview the Contractor's management personnel to determine if any inspection and test personnel have been removed from performing in an area of certification when the capabilities of the individual are not in accordance with the qualification requirements specified for the job. The inspectors should review documentation of this removal, and confirm the steps described in Section 3.4.3 of this procedure are followed to reinstate the individual.
- 4.4.4 Interview the Contractor's personnel who are responsible for administering examinations of inspection and test personnel to confirm the integrity of the examinations is maintained through confidentiality of files and, where applicable, proctoring of the examination. The inspectors should review objective evidence the examinations are maintained in the manner described during the interview.
- 4.4.5 Review copies of objective evidence of the type and content of the examinations of inspection and test personnel to confirm they are maintained in accordance with the requirements of QAM Policy Q-02.2, *Personnel Training and Qualification*.
- 4.4.6 Review the qualification records for the inspection and test personnel selected above to confirm they identify special physical characteristics needed in the performance of each activity, including the need for initial and subsequent visual acuity and other physical examination.
- 4.4.7 Review the qualification records for the inspection and test personnel selected above to confirm they are certified in writing by the responsible organization, and document the information listed in Section 3.4.7 of this procedure.

4.5 Inspection Requirements

The inspector should perform the following activities:

- 4.5.1 Interview appropriate Contractor personnel to determine whether or not inspections required to verify conformance of an item or activities to specified requirements, or the continued acceptability of items in service, are planned and executed.
- 4.5.2 Select and review a minimum of three selected inspection plans to confirm they contain the characteristics subject to inspection and the inspection methods.
- 4.5.3 Review the qualification records for a minimum of three individuals who perform inspection for acceptance to confirm the individuals were qualified. The inspectors should review the Contractor's organization chart to confirm the individuals who performed inspection for acceptance do not perform nor supervise the work being

inspected, and do not directly report to the immediate supervisor responsible for the item being inspected.

- 4.5.4 Review the Contractor's sampling procedures to confirm they are based on valid statistical methods.
- 4.5.5 Review the inspection plans selected in Section 4.5.2 above to confirm inspection requirements and acceptance criteria include specified requirements contained in the applicable design documents or other pertinent technical documents approved by the responsible design organization.
- 4.5.6 Review the inspection plans selected in Section 4.5.2 above to confirm mandatory Quality Control independent inspection hold points are required beyond which work must not proceed without specific consent of the designated representative.
- 4.5.7 Review the inspection plans selected in Section 4.5.2 above to confirm the consent to waive specified hold points is recorded prior to continuation of work beyond the designated hold point.

4.6 Inspection Planning

The inspector should perform the following activities:

- 4.6.1 Interview appropriate Contractor personnel to determine whether or not in-service inspection or surveillance of structures, systems, or components is planned or performed.
- 4.6.2 Review the inspection plans selected in Section 4.5.2 above to confirm they include the information listed in Section 3.6.2 of this procedure.

4.7 In-Process Inspection and Monitoring

The inspector should perform the following activities:

- 4.7.1 Interview appropriate Contractor personnel to determine whether or not in-process inspection and monitoring have been performed to verify quality.
- 4.7.2 Select and review a minimum of three selected Contractor's records of indirect control for items where in-process inspection is impossible or disadvantageous (e.g., monitoring of processing methods, equipment, and personnel) to confirm the control is provided.
- 4.7.3 Interview appropriate Contractor personnel to determine whether or not inspection and process monitoring is provided when control is inadequate without both.

- 4.7.4 Review the Contractor's procedures and records of in-process inspection and monitoring to confirm the processes include a combination of inspection and process monitoring, and the activities are performed in a systematic manner to ensure the specified requirements for control of the process, and the quality of the item, are met throughout the duration of the process.
- 4.7.5 Review the Contractor's procedures and records of in-process inspection and monitoring to confirm controls are established and documented for the coordination and sequencing of these activities at established inspection points during successive stages of the process or construction.

4.8 Final Inspections

The inspector should perform the following activities:

- 4.8.1 Select and review a minimum of three selected results of final inspections to determine whether the item is inspected for completeness, markings, calibration, adjustments, protection from damage, or other characteristics as required to verify the quality and conformance to the specific requirements.
- 4.8.2 Review the results of final inspections selected in Section 4.8.1 above to confirm the acceptance of the item is documented and approved by qualified and authorized personnel.
- 4.8.3 Review the results of final inspections selected in Section 4.8.1 above to confirm the inspection status of the item is identified.
- 4.8.4 Review the results of final inspections selected in Section 4.8.1 above to confirm the record includes a review of the results and resolution of nonconformances identified by prior inspections.
- 4.8.5 Review the results of final inspections selected in Section 4.8.1 above to confirm any modifications, repairs, or replacements of items performed subsequent to final inspection are re-inspected or re-tested, as appropriate, to verify acceptability.
- 4.8.6 Review the results of final inspections selected in Section 4.8.1 above to confirm the inspection documentation includes the information listed in Section 3.8.6 of this procedure.
- 4.8.7 Review the results of final inspections selected in Section 4.8.1 above to confirm documentation not previously examined prior to final inspection is examined for adequacy and completeness.

4.9 Control of Nonconforming Items, Materials, and Services

The inspector should perform the following activities:

- 4.9.1 Obtain and review three obtained nonconformance reports to confirm that nonconformances are identified, documented, evaluated, segregated (when practical), and dispositioned, and the relevant organizations are notified of the nonconformance.
- 4.9.2 Review the three nonconformance reports selected above to confirm the QA/QC activities associated with the nonconforming items include validation of the nonconformance, review of dispositions, verification of completion of disposition actions, and closure of the reporting document.

4.10 Documentation and Evaluation of Nonconformances

The inspector should perform the following activities:

- 4.10.1 Select and review a minimum of three nonconformance reports to confirm documentation is clearly identified and described the characteristics that do not conform to specified criteria.
- 4.10.2 Review the nonconformance reports selected in Section 4.10.1 above to confirm the nonconforming items are evaluated, and the recommended dispositions are proposed, evaluated, and approved.
- 4.10.3 Review the nonconformance reports selected in Section 4.10.1 above to confirm the reviews of the nonconforming items include determination of corrective action.
- 4.10.4 Review the nonconformance reports selected in Section 4.10.1 above to confirm the criteria described in Section 3.10.4 of this procedure was considered prior to documenting the nonconformance of a Quality Level item.
- 4.10.5 Review the nonconformance reports selected in Section 4.10.1 above to confirm the organizations affected by the nonconformance are notified.
- 4.10.6 Review the qualifications for the personnel responsible for evaluating the nonconformance reports selected in Section 4.10.1 above to confirm the individual is competent in the specific area they evaluated, have adequate understanding of the requirements, and have access to pertinent background information.
- 4.10.7 Review the Contractor's procedures for nonconforming item to confirm the responsibility for reviewing, evaluating, approving, determining the disposition, and closing the nonconformance report is defined.

- 4.10.8 Review the Contractor's procedures for nonconforming item to confirm the responsibility for the control of further processing, delivery, installation, or use of nonconforming items is designated in writing.
- 4.10.9 Select a review a minimum of three nonconformance reports to confirm further processing, delivery, installation, or use of the nonconforming item is controlled pending the evaluation and an approved disposition by authorized personnel.

4.11 Identification of Nonconformances

The inspector should perform the following activities:

- 4.11.1 Select and review a minimum of three nonconforming items to confirm they are identified by marking, tagging, segregation, or other methods not detrimental to the item, container, or the package containing the item. The inspectors should confirm the identification is legible and easily recognizable.
- 4.11.2 Interview the Contractor's personnel to determine if identification was impossible on any nonconforming items. If so, the inspectors should review the nonconforming item to confirm the identification is on the container, package, or segregated storage area, as appropriate.

4.12 Segregation

The inspector should perform the following activities:

- 4.12.1 Select and review a minimum of three nonconforming items which are segregated to confirm the items are placed in a clearly identified and designated hold area until properly dispositioned.
- 4.12.2 Interview the Contractor's personnel to determine whether or not any nonconforming items are impractical or impossible to segregate. If there are, the inspectors should review them to confirm other precautions are employed to preclude inadvertent use of the nonconforming item.

4.13 Disposition

The inspector should perform the following activities:

- 4.13.1 Select and review a minimum of three nonconformance reports to confirm dispositions of use-as-is, reject, repair, or rework are identified and documented.

- 4.13.2 Select and review a minimum of three nonconformance reports dispositioned as repair or use-as-is to confirm the technical justification for the acceptability of the item is documented.
- 4.13.3 Select and review a minimum of three nonconformance reports that do not meet original design requirements and are dispositioned use-as-is or repair are subjected to design control measures commensurate with those applied to the original design.
- 4.13.4 Select and review a minimum of three as-built records to confirm they reflect the use-as-is or repair condition.
- 4.13.5 Review the as-built records selected in Section 4.13.4 above to confirm changes to the specifying document are required to reflect the as-built condition.
- 4.13.6 Select and review a minimum of nonconformance reports that identify changes to documents or quality assurance records to confirm the following information is included:
- document or record change was documented,
 - the date of the document or record was changed, and
 - the justification for the change.
- 4.13.7 Review the nonconformance reports selected in Section 4.13.1 above to confirm the disposition of an item to be re-worked or repaired contain a requirement to re-examine (i.e., inspect, test, or nondestructively examine) the item to verify acceptability.
- 4.13.8 Review the nonconformance reports selected in Section 4.13.1 above to confirm the recommended disposition was evaluated and approved.

4.14 Re-examination and Quality Trending

The inspector should perform the following activities:

- 4.14.1 Select and review a minimum of three nonconformance reports for items dispositioned as repair or rework to confirm the items are re-examined using the original process and acceptance criteria unless the nonconforming item disposition established alternate acceptance criteria.
- 4.14.2 Obtain and review quality trend reports of nonconformance documentation the QA organization has periodically analyzed to determine if appropriate trending reviews are performed.

4.15 Surveillances

The inspector should perform the following activities:

- 4.15.1 Select and review a minimum of three surveillance reports to confirm they evaluate work in progress against applicable governing documents, conditions adverse to quality are identified, prompt corrective action is taken, and implementation of the corrective action is adequate and effective.
- 4.15.2 Review the qualifications of the personnel who performed the surveillances obtained in 4.15.1, and confirm they are not directly responsible for the work, but they are technically knowledgeable about the work.
- 4.15.3 Interview the personnel who performed the surveillances obtained and reviewed in 4.15.1, and confirm they have sufficient authority and freedom from the line to carry out their responsibilities.
- 4.15.4 Review the surveillance reports selected in Section 4.15.1 above to confirm they were distributed to appropriate management.
- 4.15.5 Review the listing of surveillance reports to confirm surveillances are conducted on the requirements of QAM Policy Q-18.2, *Quality Assurance Surveillance*.

5.0 REFERENCES

10 CFR 830, Subpart A, *Code of Federal Regulations*, "Quality Assurance Requirements," as amended.

ANST Standard SNT-TC-1A, "American Society of Nondestructive Testing Recommended Practice," American Society for Nondestructive Testing, 1980.

DOE/RW-0333P, *Quality Assurance Requirements and Description (QARD)*, Revision 11.

Quality Assurance Manual, 24590-WTP-QAM-QA-01-001, Revision 4, Bechtel National, Inc., 2003.

6.0 LIST OF TERMS

ASNT	American Society for Nondestructive Testing
CAMS	Corrective Action Management System
NDE	nondestructive examination
OSR	WTP Safety Regulation Division
QA	quality assurance
QAP	Quality Assurance Program
QARD	Quality Assurance Requirements and Description
QC	quality control